



A.D. 1861, 30th *JANUARY*. N° 249.

S P E C I F I C A T I O N

OF

HENRY PHILLIPS AND JAMES BANNENHR.

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URINALS: MANUFACTURE OF MANURE.  
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LONDON:

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1861.







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A.D. 1861, 30th JANUARY. N° 249.

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**Urinals: Manufacture of Manure.**

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**LETTERS PATENT** to Henry Phillips, of Pinhoe, in the County of Devon, and James Bannehr, of the City of Exeter, for the Invention of "IMPROVEMENTS IN URINALS, AND IN THE MANUFACTURE OF MANURE WHEN URINE IS USED."

Sealed the 16th July 1861, and dated the 30th January 1861.

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**PROVISIONAL SPECIFICATION** left by the said Henry Phillips and James Bannehr at the Office of the Commissioners of Patents, with their Petition, on the 30th January 1861.

We, HENRY PHILLIPS, of Pinhoe, in the County of Devon, and JAMES  
5 BANNEHR, of the City of Exeter, do hereby declare the nature of the Invention for "IMPROVEMENTS IN URINALS, AND IN THE MANUFACTURE OF MANURE WHEN URINE IS USED," to be as follows:—

This Invention has for its object improvements in urinals, and in the manufacture of manure when urine is used. For these purposes, in order to  
10 collect urine at urinals any suitable shapes and sizes of vessels are employed, and combined therewith, or the pipes leading thereto, are suitable inverted bell or other shaped traps forming water joints, by which the products evolved from the accumulating and decomposing urine are prevented escaping to the  
outer atmosphere, excepting through charcoal or other deodorizing and  
15 purifying matter; and such is the case in regard to the air which is displaced.



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from the collecting and storing vessels; the air when displaced or driven from the same by their becoming more and more full of urine, also passes amongst or through charcoal or other purifying agent. In some cases, particularly where a urinal is at a distance from a drain or receiver, and where it is desirable to have a connection with a trapped inlet to admit of rain 5 or drain water descending down the same pipe as the urine to the drain or other receiver, there are two traps or water joints combined together, one where the pipe of the urinal enters or is connected with the descending pipe to the drain or receiver, and the other to the upper end of the descending pipe where the rain or drain water is received, by which the evolved products of 10 the decomposing urine and other offensive products are prevented passing into the outer atmosphere, either at the urinal or at the upper end of the descending pipe.

In manufacturing manure, when employing human urine, it is first collected and stored in vessels where it decomposes, and such decomposed urine is com- 15 bined with the dry powder of vegetable matter, by preference the ground spent bark of tanners, though other uncharred vegetable matter which is readily capable of decomposition when saturated with urine may be used. The vegetable powder saturated with decomposed urine is allowed to stand in a heap for some weeks; the same is then dried, and the dried matters are 20 again saturated with decomposed urine, but in this and the subsequent saturations the urine employed is combined with acid or other suitable agent for fixing or combining with the ammonia, but, by preference, with sulphuric acid. The saturated vegetable powder after remaining in a heap for some time is again dried, and for such drying (owing to the ammonia being fixed) 25 higher temperatures may be employed. The dry product is again saturated, kept in a heap, and again dried, and the process is thus conducted till the degree of concentration desired has been effected.

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**SPECIFICATION** in pursuance of the conditions of the Letters Patent, filed by the said Henry Phillips and James Bannehr in the Great Seal Patent 30 Office on the 30th July 1861.

**TO ALL TO WHOM THESE PRESENTS SHALL COME**, we, HENRY PHILLIPS, of Pinhoe, in the County of Devon, and JAMES BANNEHR, of the City of Exeter, send greeting.

**WHEREAS** Her most Excellent Majesty Queen Victoria, by Her Letters 35 Patent, bearing date the Thirtieth day of January, in the year of our Lord



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One thousand eight hundred and sixty-one, in the twenty-fourth year of Her reign, did, for Herself, Her heirs and successors, give and grant unto us, the said Henry Phillips and James Bannehr, Her special licence that we, the said Henry Phillips and James Bannehr, our executors, administrators, and assigns, or such others as we, the said Henry Phillips and James Bannehr, our executors, administrators, and assigns, should at any time agree with, and no others, from time to time and at all times thereafter during the term therein expressed, should and lawfully might make, use, exercise, and vend, within the United Kingdom of Great Britain and Ireland, the Channel Islands, and Isle of Man, an Invention for “IMPROVEMENTS IN URINALS, AND IN THE MANUFACTURE OF MANURE WHEN URINE IS USED,” upon the condition (amongst others) that we, the said Henry Phillips and James Bannehr, our executors or administrators, by an instrument in writing under our or their hands and seals, or under the hand and seal of one of us or them, should particularly describe and ascertain the nature of the said Invention, and in what manner the same was to be performed, and cause the same to be filed in the Great Seal Patent Office within six calendar months next and immediately after the date of the said Letters Patent.

NOW KNOW YE, that we, the said Henry Phillips and James Bannehr, do hereby declare the nature of the said Invention, and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement thereof, that is to say:—

This Invention has for its object improvements in urinals, and in the manufacture of manure when urine is used. For these purposes, in order to collect urine at urinals any suitable shapes and sizes of vessels are employed and combined therewith or the pipes leading thereto, are suitable inverted bell or other shaped traps forming water joints, by which the products evolved from the accumulating and decomposing urine are prevented escaping to the outer atmosphere, excepting through charcoal or other deodorizing and purifying matter; and such is the case in regard to the air which is displaced from the collecting and storing vessels; the air when displaced or driven from the same by their becoming more and more full of urine, also passes amongst and through charcoal or other purifying agent. In some cases, particularly where a urinal is at a distance from a drain or receiver, and where it is desirable to have a connection with a trapped inlet to admit of rain or drain water descending down the same pipe as the urine to the drain or other receiver, there are two traps or water joints combined together, one where the pipe of the urinal enters or is connected with the descending pipe to the drain or receiver, and the other to the upper end of the descending pipe where



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the rain or drain water is received, by which the evolved products of the decomposing urine and other offensive products are prevented passing into the outer atmosphere, either at the urinal or at the upper end of the descending pipe.

In manufacturing manure, when employing human urine, it is first collected 5 and stored in vessels where it decomposes, and such decomposed urine is combined with the dry powder of vegetable matter, by preference, the ground spent bark of tanners, though other uncharred vegetable matter which is readily capable of decomposition when saturated with urine may be used. The vegetable powder saturated with decomposed urine is allowed to stand in 10 a heap for some weeks; the same is then dried, and the dried matters are again saturated with decomposed urine; but in this and the subsequent saturations the urine employed is combined with acid or other suitable agent for fixing and combining with the ammonia, by preference, with sulphuric acid. The saturated vegetable powder after remaining in a heap for some time is again 15 dried, and for such drying (owing to the ammonia being fixed) higher temperatures may be employed. The dry product is again saturated, kept in a heap, and again dried, and the process is thus conducted till the degree of concentration desired has been effected.

Having thus stated the nature of our said Invention, we will proceed more 20 fully to describe the manner of performing the same.

#### DESCRIPTION OF THE DRAWINGS.

Figure 1 shews a vertical section of a vessel for collecting and for a time storing urine at urinals; Figure 2 shews a horizontal section taken at A, A, Figure 1; and Figure 3 shews a separate view of deodorizing chamber and 25 trap. In this arrangement the trap is shewn in combination with the receiving and storing vessel, but this part of the apparatus may be at a distance from the vessel, and be connected to it by a suitable pipe or drain connected to the vessel in such manner as to prevent air passing into the outer atmosphere from the storing vessel without first having passed through 30 that part of the apparatus which contains charcoal or other deodorizing and purifying matter. *a, a*, is the storing vessel, which is shewn to be of a cylindrical form, but vessels of other shapes may be employed. At the upper part of the vessel *a, a*, it is covered by a funnel or conical shaped cover *b*, having a descending pipe *c*, the lower end of which dips into a small vessel *d*, so as to 35 form a fluid joint which will admit of the urine flowing freely into the vessel *a, a*, but will prevent the passage of air from the vessel *a, a*, in that direction. The cover *b* may be fixed to the vessel *a, a*, in the manner shown, or by any



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*Phillips & Bannehr's Improvements in Urinals, and Manufacture of Manure.*

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other convenient means, care being taken that the cover should fit the upper part of the vessel *a, a*, in such manner as to be as air-tight as may be. At the upper part of the vessel *a, a*, and below the cover, is a chamber or compartment *e*, the bottom of which is perforated with numerous holes, and in the upper part of which is an outlet to allow the displaced air from the urinals or storing vessels to pass away after passing through the deodorizing matter next described. In this chamber charcoal in a granular state is placed, or other deodorizing matters may be used in place thereof, or in addition thereto. The form of the bell trap or fluid joint may be varied, and as before stated that part of the apparatus and also the deodorizing chamber may be at a distance from the storing vessel *a, a*.

Figure 4 shews a vertical section of apparatus when it is desired that a urinal should be in combination with a rain-water pipe. When employing urine in the manufacture of manure, the urine is allowed to decompose when stored in suitable vessels, and such decomposition will generally take place in about thirty or forty days when stored in vessels such as above described. The decomposed urine is then mixed with or absorbed by dry vegetable matter which is saturated therewith, which may be dried immediately and treated as hereafter explained, or allowed to stand in a heap for two or three months, and then treated as hereafter explained. These matters are then dried, which is most conveniently done in chambers or drying rooms heated to about 120° to 130° of Fahrenheit. The dried matters, which are similar to what have before been prepared by us, are then saturated with a further quantity of decomposed urine, but in this case and in the subsequent saturations acid or other suitable agent for fixing or combining the ammonia is used. When using acid it is preferred to employ and mix with the decomposed urine sulphuric acid at the rate of about 3lbs. of acid to 100 lbs. of the urine. The saturated vegetable matter is then again allowed to stand in a heap for about 2 or 3 days, and then again dried, or it may be dried immediately, and by preference at about 120° to 130° of Fahrenheit. The drying may be facilitated by the mass of saturated vegetable matter being repeatedly turned over. This process of saturation and drying is again and again repeated till the degree of concentration desired has been obtained. In place of sulphuric acid, the salts of lime, preferring sulphate of lime, in the proportion of about 6 lbs. of sulphate of lime to 100 lbs. of urine or other known suitable agent for fixing or combining with the ammonia, may be used with the urine. If sulphate of lime be used, it should be allowed to remain some weeks in the urine, the mixture being repeatedly stirred before mixing with the



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vegetable matter. When addition of phosphate of lime is desired in the manure biphosphate of lime is used in the latter saturations with the urine.

Having thus described the nature of our Invention, and the manner of performing the same, we would have it understood that what we claim is,—

First, the combined apparatus herein described for collecting and storing 5 urine.

And, secondly, we claim the manufacture of manure as herein described.

In witness whereof, we, the said Henry Phillips and James Bannehr, have hereunto set our hands and seals, this Fourth day of July, in the year of our Lord One thousand eight hundred and sixty-one. 10

H<sup>y</sup>. PHILLIPS. (L.S.)

J. BANNEHR. (L.S.)

Witness,

PAUL COURTI, Jun<sup>r</sup>.,

Jeweller, Exeter. 15

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LONDON:

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FIG . 1 .

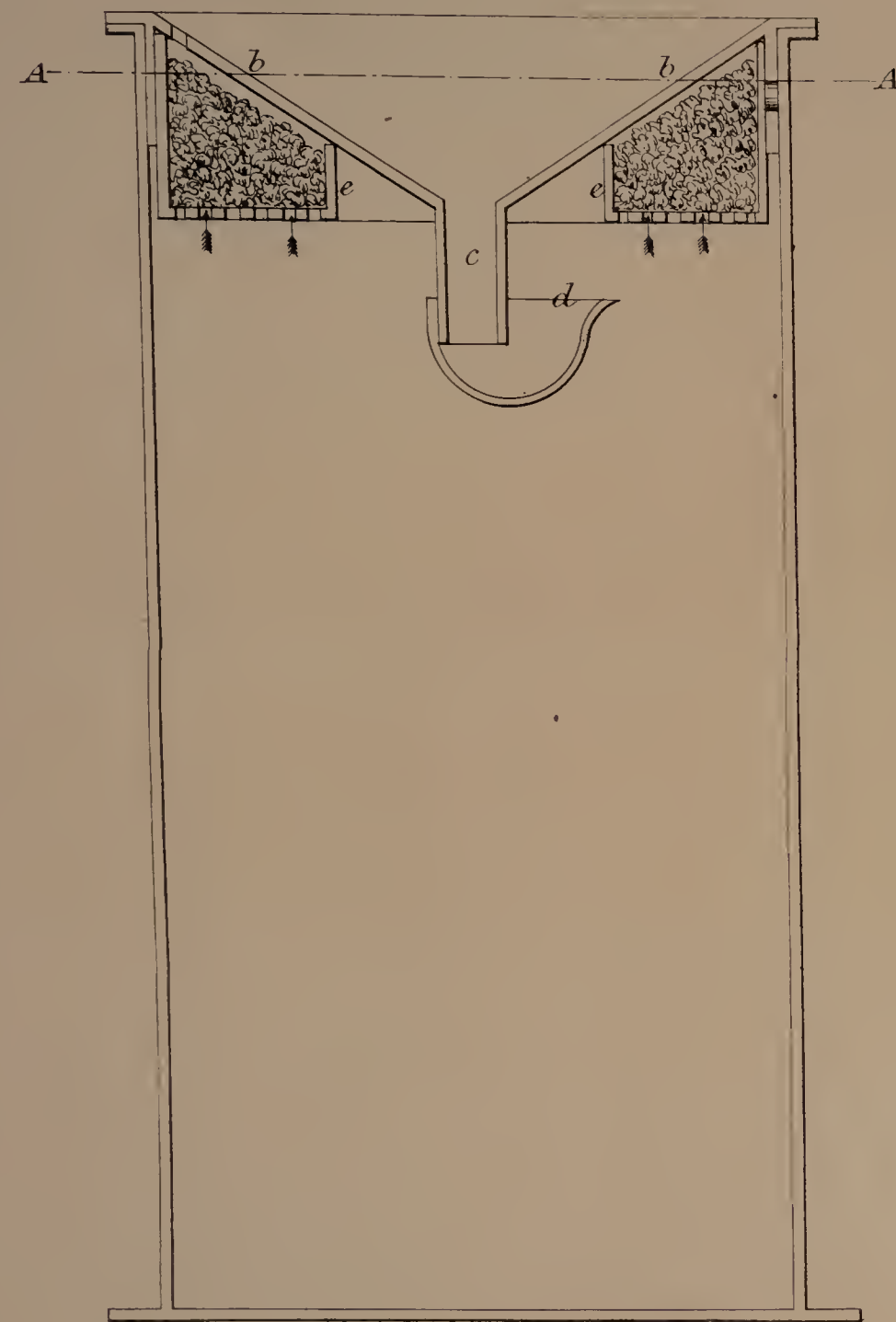


FIG . 3 .

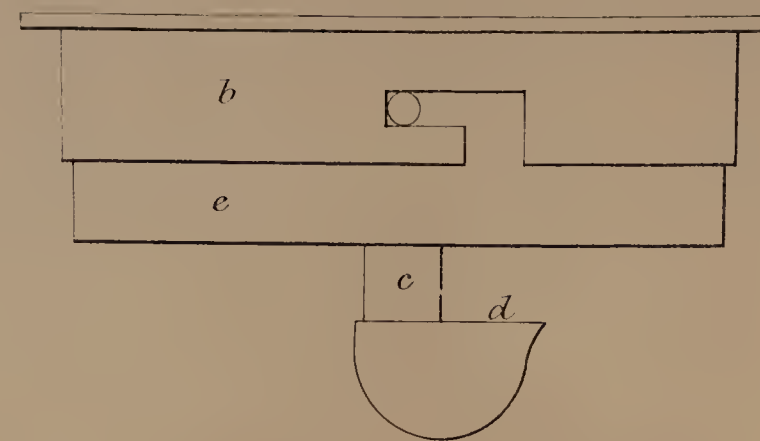


FIG . 2 .

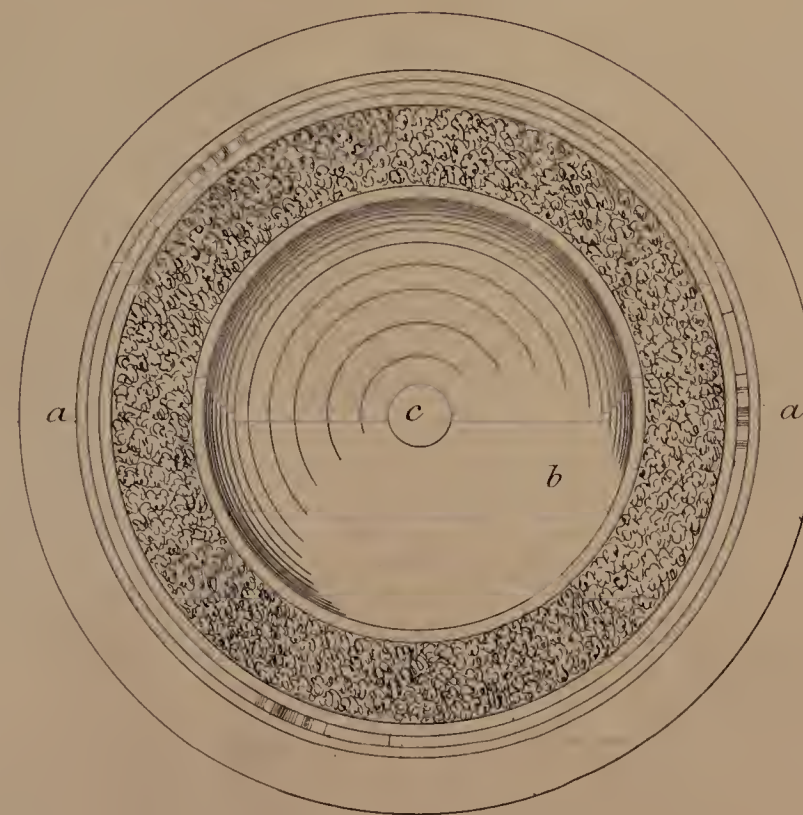
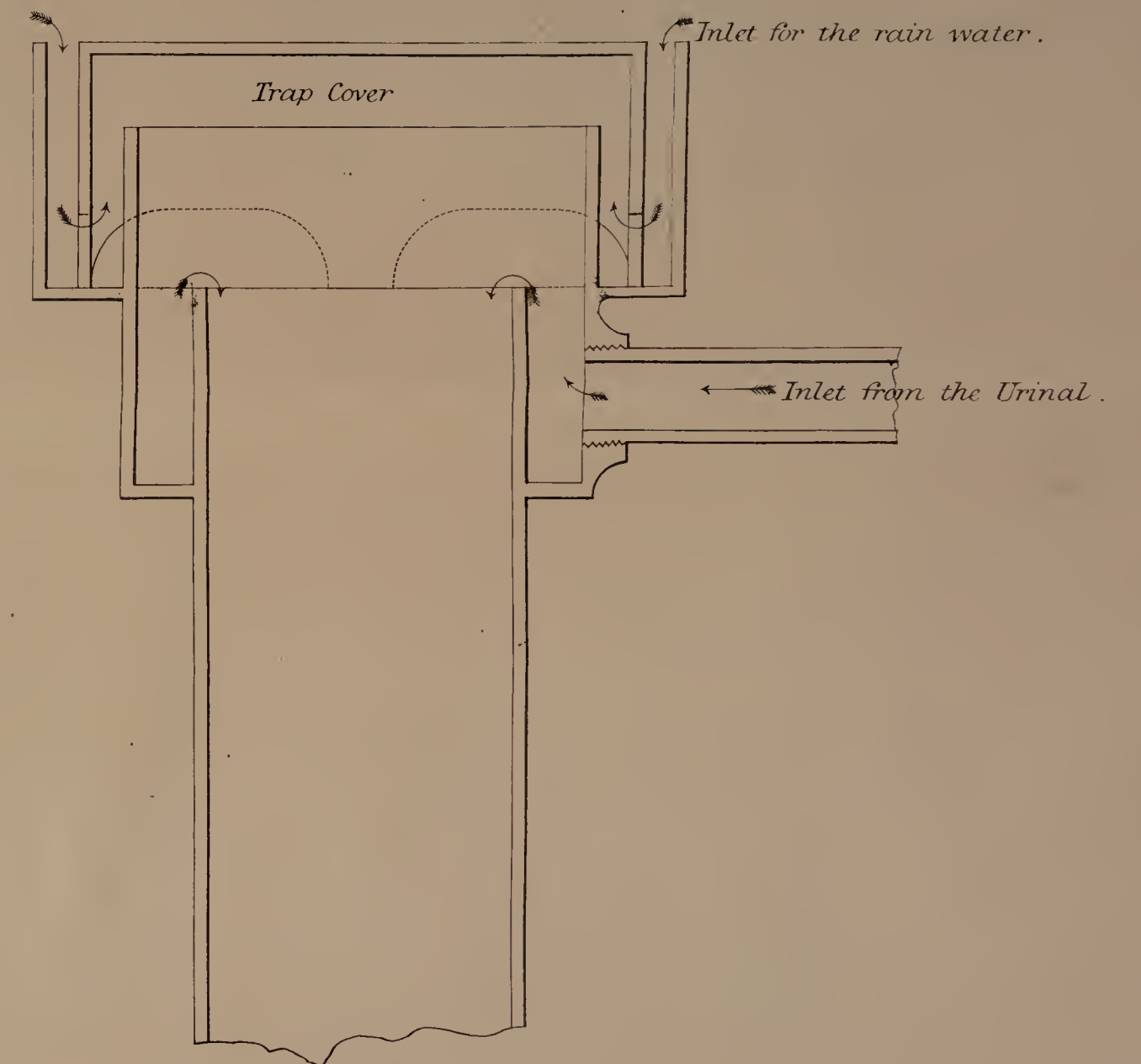


FIG . 4 .



Separate view in Section of Trap Cover .



The filed drawing is partly colored .

Drawn on Stone by Mulry & Sons



